

EARTH OBSERVATION SYMPOSIUM (B1)
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FAST PHOTOMETER DESIGN FOR THE ASIM ISS MISSION

Abstract

The Atmospheric-Space Interactions Monitor (ASIM) consists of a suite of instruments to make observations of Transient Luminous Events (TLEs) and Terrestrial Gamma-ray Flashes (TGFs). The optical part of the payload is called the Multi-Spectral Modular Imaging Array (MMIA) and consists of a combination of camera units and photometers. The Modular X- and Gamma-ray Sensor (MXGS) is a coded aperture based gamma ray imaging system.

The payload is to be flown on the ISS to measure the TLE's which are associated with electrical discharges in the atmosphere above 10km and commonly associated with lightning events on the Earth. Three primary types of TLE's will be studied: SPRITES, ELVES and HALOES.

There will be six photometers measuring photon fluxes in specific narrow band and broad band channels between 145nm and 740nm. The six photometers will be mounted into three MMIA units each containing two photometers. Two MMIA modules will be pointed towards the Earth Limb and on MMIA to the Nadir.

This paper describes the preliminary design of the photometers based on the current measurements and models of TLE characteristics.